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Avalanche Notes

U.S. Forest Service
Westwide Avalanche Network

MARCH 94

Weather

The weather pattern in March for the western U.S. featured a persistent split jet stream. This led to a northern storm track over Alaska, a southern storm track across New Mexico, and very little in between. In Alaska, both Eaglecrest and Alyeska saw a parade of storms all month. Alyeska had measurable precipitation on 25 days, recorded 28" of snow on the 24th-26th, and finished the month with 144% of normal. In New Mexico, Taos received 21" on the 8th-9th and 27" on the 26th-28th, which boosted monthly snowfall to 127% of normal.

In the Cascades of Washington, almost all the snowfall came on the 17th-23rd. Mt. Rainier got two 35-inch storms on the 18th-19th and 21st-22nd, which pushed it to 102% of normal. Stevens Pass recorded 92% of normal, and Crystal Mt., 84%. In Oregon, Mt. Hood Meadows recorded 61% of normal.

In the Sierra of California, the Pacific High was dominant, so snowfall was far below normal. Mammoth Mt. got 40%; Squaw Valley, 29%; and Alpine Meadows, 23%.

In the Intermountain area, snowfall followed the pattern set in California. In Montana, Bridger Bowl got 55%; Big Sky, 45%; and Big Mountain, 35% of normal. In Utah, Alta got 45% and Snowbird, 38%. Jackson Hole, WY, was even drier with 22% of normal, and Sun Valley, ID, managed but 12% on two 2-inch storms.

In Colorado, sites in the Front Range received decent snows on storms riding the merging branches of the storm track. The town of Winter Park recorded 105% of normal; Berthoud Pass, 100%; Winter Park ski area, 89%; Copper Mt., 84%; and Loveland, 80%. All other sites were left hurting for snowfall: Aspen Mt., Breckenridge, and Red Mountain Pass, all 66-69%; Arapahoe Basin, Beaver Creek, and Gothic, all 54-58%; Aspen Highlands and Purgatory, 47%; and Crested Butte, Steamboat, Telluride, Vail, and Wolf Creek, all 41-44%. Wolf Creek recorded wind gusts of 90 mph on the 22nd, and 93 mph on the 23rd.

Avalanche

Alyeska, AK, with above-normal snowfall, experienced an active avalanche month. There were 12 deep releases with fracture depths of 4-6' and 78 avalanches that fell 1000' or more in elevation. Additionally, patrollers there released about 30 large avalanches outside the ski area boundary by helicopter bombing, as part of scouting for next winter's helicopter skiing. These fractured 4-8' deep, were up to 3/4 mile wide, and fell up to 2300' vertical. In Washington, Stevens Pass, with its snowfall concentrated in a 7-day period, experienced a very active soft-slab cycle during that week.

Twenty-one avalanche incidents were reported in March. Two were fatal accidents which involved snowmobilers in Alaska. Here are details on these two which occurred on consecutive days and not far from one another:

On March 27, in a bowl that forms the headwaters of Boulder Creek in the Kenai Mountains, three snowmobilers were playing highmark when they triggered a large hard-slab avalanche. The victim, a 35-year-old man, tried to outrun the avalanche, but it swallowed up him and his machine before he could reach safety. Witnesses quickly located his partly-buried snowmobile but could not find the victim. The next day (March 28) a probe line led by Doug Fesler located and recovered the victim's body from under 8 feet of snow.

As Fesler was flying back to Anchorage via Alaska State Trooper helicopter, the radio crackled with a report of another victim buried in an avalanche. This one, too, was a snowmobiler who had been playing highmark near Powerline Pass in Chugach State Park. The helicopter landed, with Fesler and rescue gear on board, at the avalanche site one hour after the accident had occurred. Fesler learned that two snowmobilers had triggered and been caught in a hard-slab avalanche. One man was buried, though his machine had been found partly buried. Initially 15 volunteer rescuers were put to work, but later the number of rescuers swelled to 85. Six hours after the accident occurred, a probe line struck the victim's body 12 feet beneath the surface. It took another 1-1/2 hours of digging to recover the body. (Footnote: There was overwhelming support shown by rescuers, both volunteers and organized rescue teams. But there was one heartless thief in the group: He stole the Alaska State Trooper's brand new Yamaha Enticer snowmobile which was left parked at the base of the debris.)

Also in Alaska, two other snowmobilers were caught by avalanches on the 18th and 19th. Both escaped unharmed, but their machines sustained about \$5,000 damage.

In March, a total of 32 people were caught, 8 partly buried, 2 buried, and 2 killed. The winter's statistics through March read: 86 incidents reported, 117 people caught, 34 partly buried, 21 buried, 7 injured, and 10 killed. Damage has occurred to two vehicles and one mine building for a total of \$255,000.

U.S. FOREST SERVICE
WESTWIDE WEATHER AND AVALANCHE NETWORK
FORT COLLINS, COLORADO

MARCH 1994
SUMMARY OF WEATHER AND SNOW CONDITIONS

AREA	SNOWFALL				WATER EQUIVALENT								SNOW DEPTH				TEMPERATURE			WIND SPEED AND DIRECTION					
	TOTAL SNOW- FALL IN.	AVG DEN	MAX		TOTAL WATER IN.	MAX IN.	D E	A	NUMBER OF DAYS				D A	T E	MIN IN.	AVG IN.	MEAN MAX DEGREES F	MEAN MIN DEGREES F	AVG	AVG FOR MO. MPH	6 HOUR PERIODS		FASTEST HOUR MPH	D A T E	
			IN	D					GE	GE	GE	GE									15	20			
CENTRAL AND SOUTHERN ROCKY MOUNTAINS																									
ARAPAHOE BASIN, COLO	35.7	.08	7	29	2.79	.52	12	13	6	1	0	76	29	60	64	31.4M	7.6M	19.5M	14.9M	48M	26M	--	--	--	
ASPEN HIGHLANDS, CO	25.4	.09	8	23	2.16	.70	23	8	5	1	0	62	27	46	51	30.3	16.3	23.3	7.6	6	2	24	290	28	
ASPEN MOUNTAIN, COLO	34.0	.10	11	23	3.31	1.50	23	8	5	1	1	71	26	56	61	39.1	17.5	28.3	6.6	4	0	20	210	16	
BEAR LAKE, RMNP, CO	37.5	.07	7	12	2.57	.50	27	8	7	1	0	64	27	51	56	30.2M	21.0M	25.6M	--	--	--	--	--	--	
BEAVER CREEK, COLO	36.5	.08	5	23	2.83	.65	25	9	7	1	0	76	29	60	65	34.4	14.0	24.2	6.6	1	0	19	260	23	
BERTHOUD PASS, COLO	58.0	.06	12	29	3.75	.68	29	12	8	1	0	74	29	54	59	31.5	7.2	19.3	15.4	57	31	41	250	16	
BRECKENRIDGE, COLO	38.5	.07	7	29	2.71	.50	29	13	8	1	0	67	30	46	55	29.0	13.1	21.0	13.0	43	11	31	210	22	
COPPER MTN, COLO	43.5	.05	7	23	2.21	.50	23	12	4	1	0	58	29	45	49	35.1	10.9	23.0	17.9M	69M	44M	49	270	17	
CRESTED BUTTE, COLO	14.5	.08	4	20	1.20	.40	20	3	3	0	0	52	23	43	47	29.3M	16.0M	22.7M	9.7M	19M	3M	39	230	22	
GOTHIC, COLO	35.0	.08	8	23	2.75	.65	20	5	5	3	0	57	26	47	51	37.9	11.3	24.6	--	--	--	--	--	--	
KEYSTONE, COLO	29.9	--	6	29	--	--	--	--	--	--	--	59	29	46	50	34.5	11.6	23.0	9.9	17	2	--	--	--	
POWDERHORN, COLO	17.5	--	5	20	--	--	--	--	--	--	--	49	26	34	41	35.1M	19.2M	27.2M	5.1M	4M	0M	--	--	--	
PURGATORY, COLO	26.4	.07	9	20	1.92	.72	20	4	3	2	0	60	25	48	53	36.5	16.2	26.3	--	--	--	18	310	27	
RED MTN PASS U.S.550	48.1	.08	11	25	3.65	.90	25	12	6	3	0	76	27	56	63	38.8	10.8	24.8	--	--	--	--	--	--	
STEAMBOAT, COLORADO	22.5	--	6	25	--	--	--	--	--	--	--	56	1	46	50	38.2	19.8	29.0	--	--	--	--	--	--	
TAOS, NEW MEXICO	67.5	.07	16	27	4.49	1.20	27	11	8	2	2	115	27	90	101	33.4	18.4	25.9	8.8M	18M	8M	46	120	13	
TELLURIDE, COLO	26.5	.09	7	20	2.42	.69	20	8	3	1	0	58	25	48	52	32.1	15.8	24.0	8.6M	13M	4M	31	200	21	
VAIL, COLO	29.5	.08	5	21	2.27	.50	21	9	4	1	0	70	29	57	61	34.7	14.7	24.7	7.6	5	0	20	160	22	
WINTER PARK S.A., CO	64.1	.07	15	29	4.30	.83	29	15	9	2	0	87	29	62	67	31.8	13.7	22.8	8.1	14	2	31	280	21	
WINTER PARK 1E, COLO	44.4	.06	10	29	2.72	.58	29	9	5	1	0	54	29	36	40	38.6	10.4	24.5	--	--	--	--	--	--	
WOLF CREEK, COLO	34.9	.12	10	20	4.12	1.10	20	9	6	3	2	103	26	86	92	37.7	15.0	26.3	19.3M	71M	52M	64	50	12	
INTERMOUNTAIN																									
ALTA, UTAH	47.0	.10	18	22	4.68	1.82	19	--	--	--	--	114	23	92	100	36.3	19.1	28.3	16.7	--	--	--	49	250	23
BIG SKY, MONT	23.5	--	5	19	--	--	--	--	--	--	--	54	23	45	48	33.3	19.0	26.1	--	--	--	--	--	--	
BIG MOUNTAIN, MONT	18.0	--	5	18	--	--	--	--	--	--	--	95	1	84	88	33.7	21.6	27.7	--	--	--	--	--	--	
BRIDGER BOWL, MONT	33.5	.09	6	19	3.10	.75	19	9	8	1	0	74	24	59	65	38.6	19.2	28.9	11.3	27	9	27	250	12	
GRAND TARGHEE, WYO	12.5	.11	7	24	1.35	.70	11	2	2	2	0	62	1	47	52	38.5M	18.5M	28.5M	--	--	--	--	--	--	
JACKSON HOLE 1, WYO	14.8	.11	6	23	1.57	.70	23	5	2	1	0	82	1	68	73	27.0	18.5	22.8	15.1M	61M	29M	40	350	27	
SCHWEITZER BASIN, ID	25.0	--	14	18	--	--	--	--	--	--	--	90	21	73	80	35.8	23.5	29.7	--	--	--	--	--	--	
SNOWBIRD, UTAH	36.5	.10	18	23	3.69	1.41	20	5	5	2	2	83	1	57	66	42.6	23.4	33.0	19.1	77	60	--	--	--	
SUN VALLEY, IDAHO	4.0	.09	2	22	.35	.20	31	2	1	0	0	44	1	36	38	33.6	20.8	27.2	11.9	31	10	30	190	19	
WEST COAST																									
ALPINE MEADOWS, CAL	15.5	.12	6	23	2.09	.88	11	4	4	2	0	81	1	53	65	45.0	28.8	36.9	25.2	108	87	60	80	11	
ALYESKA, ALASKA	119.6	.09	14	1	11.70	1.44	24	20	15	9	3	134	27	98	112	28.5	18.3	23.4	5.1	0	0	17	240	3	
CRYSTAL MTN 2, WASH	51.0	.08	16	21	4.20	1.25	21	11	8	2	1	101	1	76	86	42.0	24.6	33.3	--	--	--	--	--	--	
CRYSTAL MTN 1, WASH	45.8	.06	13	19	3.77	.71	21	10	7	3	0	87	22	61	69	46.1	27.3	36.7	12.4	45	25	45	240	2	
EAGLECREST, ALASKA	102.5	.08	18	17	9.19	1.52	17	19	13	8	1	152	17	102	135	31.5	23.6	27.6	--	--	--	--	--	--	
HEAVENLY VALLEY, CAL	13.5	--	6	25	--	--	--	--	--	--	--	52	6	37	43	41.0	22.9	31.9	--	--	--	--	--	--	
JUNE MOUNTAIN, CALIF	38.5	.08	15	26	3.20	1.30	26	6	6	2	1	46	26	30	36	--	--	--	--	--	--	--	--	--	
MAMMOTH MTN, CALIF	25.5	--	8	6	--	--	--	--	--	--	--	46	26	34	38	42.2	22.1	32.1	--	--	--	--	--	--	
MT. RAINIER PARADISE	103.0	.10	24	21	12.16	2.20	21	15	13	7	5	175	22	128	147	41.1	27.2	34.1	4.8M	7M	1M	25	280	20	
MT. HOOD MDWS, ORE.	44.0	.13	12	19	8.10	1.37	19	14	11	7	2	117	22	84	96	44.3	27.2	35.7	14.1	68	38	46	270	17	
SNOQUALMIE PASS I-90	44.6	.10	12	22	7.47	1.38	18	13	9	6	3	90	22	62	74	48.8	27.9	38.4	5.4	0	0	26	270	1	
SQUAW VALLEY, CALIF	16.8	.08	7	23	1.26	.43	11	4	3	0	0	114	1	91	101	41.2	27.2	34.2	25.3	97	80	62	250	19	
STEVENS PASS 5E WASH	62.5	--	12	19	--	--	--	--	--	--	--	103	22	76	87	42.4M	28.0M	35.2M	6.9M	6M	2M	--	--	--	
STEVENS PASS, WASH	57.1	.08	10	19	6.94	.98	3	14	13	7	0	98	22	72	81	41.8	28.3	35.1	--	--	--	--	--	--	
SUGAR BOWL, CALIF	14.0	--	4	6	--	--	--	--	--	--	--	110	1	78	94	45.1	23.5	34.3	11.4M	52M	20M	35	220	18	

-- DATA INCOMPLETE OR MISSING

M-ONE OR MORE DAYS OF RECORD MISSING-IF AVERAGE VALUE IS ENTERED, LESS THAN 10 DAYS RECORD IS MISSING

IF M IS ENTERED IN WIND SPEED COLUMN, LESS THAN 37 6-HOUR PERIODS ARE MISSING

GE--GREATER THAN OR EQUAL TO

U.S. FOREST SERVICE
WESTWIDE WEATHER AND AVALANCHE NETWORK
FORT COLLINS, COLORADO

MARCH 1994
AVALANCHE SUMMARY

AREA	TOTAL	TOTAL	DATES OF				NUMBER OF DAYS WITH		TYPE OF AVALANCHE										FRACTURE LINE HEIGHTS IN FEET			VERTICAL DESCENT IN FEET				AVALS ACROSS MAJOR ACCESS ROADS NO.	
	A	A					A	S	A	N																	
	V	V					R	T	T		SLABS																
	A	A					I	U	I	U	H	S		L													
	L	L					F	F	F	R	A	O	W	O													
S	S					S	S	S	L	D	T	T	E	GE	GE	GE	GE	GE	GE	MAX							
THIS MONTH NO.	THIS WINTER NO.			F I R S T	L A S T	MAX IN ONE DAY NO.	D A Y		-----NUMBER-----										-NUMBER-			---NUMBER---				FEET	
CENTRAL AND SOUTHERN ROCKY MOUNTAINS																											
ARAPAHOE BASIN, COLO	13	91	29	30	12	29	2	0	7	6	0	13	0	0	12	0	0	12	9	0	900	0					
ASPEN HIGHLANDS, COL	24	150	2	30	5	30+	11	0	17	7	0	10	7	7	6	2	0	23	13	6	3000	0					
BERTHOUD PASS, COLO	4	67	21	28	2	28+	2	0	0	4	0	3	0	0	2	0	0	4	2	0	500	0					
BRECKENRIDGE, COLO	19	164	9	31	6	28	6	0	19	0	1	18	0	0	8	0	0	16	5	0	700	0					
COLO HIGHWAY 110	1	19	1	1	1	1	1	0	0	1	0	1	0	0	1	0	0	1	1	1	1600	0					
COPPER MT, COLO	3	10	29	30	2	30	2	0	3	0	2	1	0	0	3	0	0	3	2	0	600	0					
CRESTED BUTTE, COLO	2	35	20	21	1	21+	2	0	2	0	0	2	0	0	0	0	0	2	0	0	400	0					
GOthic, COLO	30	186	1	26	8	20	9	0	1	29	0	6	0	24	2	0	0	30	22	8	1500	0					
LOVELAND BASIN, COLO	5	42	27	29	3	29	2	0	5	0	5	0	0	0	5	1	0	5	0	0	440	0					
RED MTN PASS U.S.550	17	185	3	23	4	4	8	0	6	11	3	3	8	3	7	1	0	16	9	4	1800	1					
TAOS, NEW MEXICO	5	91	14	29	3	29	3	0	3	2	3	0	2	0	3	2	0	5	2	0	500	0					
TELLURIDE, COLO	19	142	3	30	4	28	11	0	17	2	10	6	0	3	12	2	2	14	9	5	1500	0					
URAD MINE, COLO	2	17	21	29	1	29+	2	0	1	1	0	2	0	0	0	0	0	2	2	1	1400	0					
VAIL, COLO	2	19	4	23	1	23+	2	0	2	0	0	1	1	0	2	0	0	1	0	0	200	0					
WOLF CREEK, COLO	4	85	20	25	3	25	2	0	4	0	0	4	0	0	0	0	0	0	0	0	160	0					
INTERMOUNTAIN																											
ALTA, UTAH	110	905	8	30	48	23	7	0	101	9	0	110	0	0	7	1	0	70	21	1	1000	0					
BIG MOUNTAIN, MONT	6	85	18	21	5	18	2	0	6	0	0	6	0	0	0	0	0	0	0	0	150	0					
BRIDGER BOWL, MONT	50	392	3	27	16	19	8	0	46	4	2	44	0	4	0	0	0	50	35	8	1200	0					
JACKSON HOLE, WYO	2	96	12	23	1	23+	2	0	2	0	0	2	0	0	2	0	0	2	1	0	600	0					
SNOWBIRD, UTAH	55	795																									
WEST COAST																											
ALPINE MEADOWS, CAL	7	481	3	3	7	3	1	0	7	0	0	7	0	0	0	0	0	7	0	0	300	0					
ALYESKA, ALASKA	120	240	2	29	22	16	13	0	111	9	5	113	0	0	95	10	2	115	106	78	2400	0					
CRYSTAL MTN, WASH	102	497	1	22	39	19	8	0	95	7	0	80	15	7	19	5	0	90	29	1	1000	0					
JUNE MOUNTAIN, CALIF	6	10	6	26	3	26+	2	0	6	0	0	6	0	0	3	0	0	4	0	0	200	0					
MT. HOOD MEADOWS	13	165	19	23	4	19	4	0	13	0	0	13	0	0	1	1	0	7	4	0	650	0					
SNOQUALMIE PASS I-90	8	59	18	21	5	21	2	0	8	0	0	8	0	0	8	0	0	7	7	7	1500	6					
SQUAW VALLEY, CALIF	15	819	11	23	8	11	2	0	15	0	0	15	0	0	0	0	0	5	0	0	250	0					
STEVENS PASS, WASH	226	854	10	22	54	19	7	0	226	0	0	134	0	92	14	0	0	0	0	0	0	0					

-- = DATA INCOMPLETE OR MISSING
GE = GREATER THAN OR EQUAL TO
+ = ALSO OCCURRED ON OTHER DATES